CLAIMS

Claim 1(currently amended). An electro-mechanical transducer comprising:

a magnetic assembly producing a magnetic field, that field having two or more displaced regions of greater intensity, those regions having magnetic flux in substantially similar directions, and separated by and surround by regions of lower-intensity magnetic field; and wherein

an electrically-conductive and mobile member disposed in the magnetic field is capable of moving through the magnetic field.

Claim 2 (cancelled).

Claim 3 (original). An apparatus of Claim 1 as an electro-acoustic transducer with:

a supporting frame;

an acoustic-radiating diaphragm attached to and moving with the electrically conductive and mobile member.

an air seal at the edge of the diaphragm; and

a suspending element to provide restoring force to the moving parts.

Claim 4 (original). An apparatus of Claim 3, whose magnetic assembly is created by a central pole, back plate, magnetic material and top plate.

Claim 5 (previously presented). An apparatus of Claim 4, whose pole and/or top plate are each made of single pieces of ferromagnetic material to create the stated non-uniform magnetic field.

Claim 6 (previously presented). An apparatus of Claim 4, whose pole and/or top plate are each made of multiple pieces of ferromagnetic material to create the stated non-uniform magnetic field.

Claim 7 (previously presented). An apparatus of Claim 4, wherein the top plate is to produce the regions of varying magnetic intensity.

Claim 8 (previously presented). An apparatus of Claim 4, wherein the pole is to produce the regions of varying magnetic intensity.

Claim 9 (previously presented). An apparatus of Claim 4, wherein both the top plate and center pole produce the regions of varying magnetic intensity.

Claim 10 (original). An apparatus of Claim 9, wherein the top plate and center pole include opposing surface grooves.

Claim 11 (cancelled).

Claim 12 (previously presented). An apparatus of Claim 10, with an inter-gap magnetic field intensity less than the gap magnetic field intensity.

Claim 13 (previously presented). An apparatus of Claim 10, with a magnetic field intensity outside the main gap region less than the gap magnetic field intensity.

Claim 14 (cancelled).

Claim 15 (original). An apparatus of Claim 10, with the magnetic field intensity between the gaps and those outside the main gap region of substantially similar size and/or magnitude.

Claim 16 (original). An apparatus of Claim 10, with the magnetic field intensity between the gaps and those outside the main gap region of substantially different size and/or magnitude.

Claim 17 (original). An apparatus of Claim 1, wherein at least one region of high magnetic intensity is of magnitude and/or size substantially similar to that in other regions.

Claim 18 (original). An apparatus of Claim 1, wherein at least one region of high magnetic intensity is of magnitude and/or size substantially different from that in other regions.

Claim 19 (original). An apparatus of Claim 1, with more than one field.

Claim 20 (original). An apparatus of Claim 1, with nonmagnetic material in at least one region of lower flux.

Claim 21 (original). An apparatus of Claim 1, with paramagnetic material in at least one region of lower flux.

Claim 22 (previously presented). An apparatus of Claim 1, with diamagnetic material in at least one region of lower flux.

Claim 23 (previously presented). An apparatus of Claim 1, with at least one region of lower flux containing a ferromagnetic material different from the surrounding ferromagnetic material.

Claim 24 (original). An apparatus of Claim 1, with electrically conductive material in at least one region of lower flux.

Claim 25 (original). An apparatus of Claim 1, with passively-energized, electrically-conductive non-magnetic material in the region of lower flux.

Claim 26 (original). An apparatus of Claim 1, with externally-energized, electrically-conductive non-magnetic material in the region of lower flux (i.e. coil of wire).

Claim 27 (original). An apparatus of Claim 1, wherein regions of multiple flux maxima are repeated in an axially-displaced location but with flux in the opposite direction, thereby creating a structure have 4 or more regions of greater intensity and half of which have flux opposite that of the other half, each grouping having its own attendant coil.

Claim 28 (original). An apparatus of Claim 9, wherein the pole has additional grooves beyond those in the top plate.

Claim 29 (original). An apparatus of Claim 9, wherein the top plate has additional grooves beyond those in the pole.

Claim 30 (previously presented). An apparatus of Claim 3, wherein the pole and/or top plate produce multiple regions of varying magnetic intensity of different dimensions.

Claim 31 (previously presented). An apparatus of Claim 1, whose magnetic assembly is created by a central pole, back plate, and magnetic material with a field arranged so as to eliminate the need for a top plate.

Claim 32 (previously presented). An apparatus of Claim 1 with:

a supporting frame; and

a suspending element to provide restoring force to the moving parts.

Claim 33 (previously presented). An apparatus of Claim 32 as an electro-acoustic transducer, with an acoustic-radiating diaphragm attached to and moving with the electrically conductive and mobile member.

Claim 34 (previously presented). An apparatus of Claim 1, wherein the electrically-conductive and mobile member has the length of its conductive region along the motional axis similar to the distance between maxima in the magnetic field through which it travels.

Claim 35 (previously presented). An apparatus of Claim 1, wherein the electrically-conductive and mobile member has the length of its conductive region along the motional axis somewhat shorter than the distance between maxima in the magnetic field through which it travels.

Claim 36 (previously presented) An apparatus of Claim 1, wherein the electrically-conductive and mobile member has the length of its conductive region along the motional axis somewhat longer than the distance between maxima in the magnetic field through which it travels.